

Microsoft
.net developer
training

Create XML Web Services and Applications with Visual Studio .NET

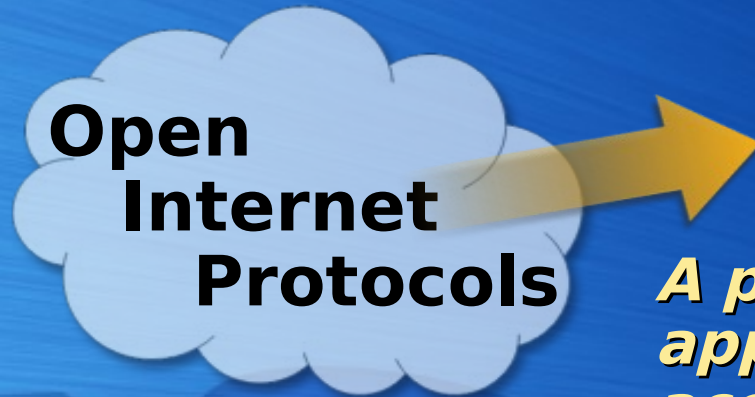


Creating XML Web Services

Module 10 Agenda

- **Visual Studio® .NET and XML Web Services**
 - What is an XML Web service?
 - What does an XML Web service do?
 - Mapping
 - Creating
 - Consuming
 - Returning data from an XML Web service
 - Using Data from an XML Web service
 - Designing
 - WSDL, DISCO and UDDI
 - Securing XML Web services

What Is An XML Web Service?



**XML
Web
service**

*A programmable
application component
accessible via standard
Web protocols*

- **UDDI** - Provides a directory of services on the Internet
- **WSDL** - XML Web services are defined in terms of the formats and ordering of messages
- **SOAP** - XML Web service consumers can send and receive messages using XML
- Built using open Internet protocols

UDDI

Universal Description,
Discovery and
Integration

Discovery and
Integration

WSDL

XML Web services
Description Language

SOAP

XML and HTTP

What Does An XML Web Service Do?

- **XML Web services**
 - **Expose functionality as a service and allow applications to share data**
 - **Can be called across platforms and operating systems and regardless of programming language**

XML Web Services Mapping

*The .NET Framework
provides
a bi-directional mapping*



WSDL and SOAP

- **Think "TypeLib for SOAP"**
- **Uniform representation for services**
 - **Transport Protocol neutral**
 - **Access Protocol neutral (not only SOAP)**
- **Describes how to call an XML Web service**

DISCO

- **DISCO is a proprietary file format placed at the root of a web directory**
- **Visual Studio generates the DISCO for your XML Web service when you generate your service**
- **Easy discovery model for HTTP**

UDDI

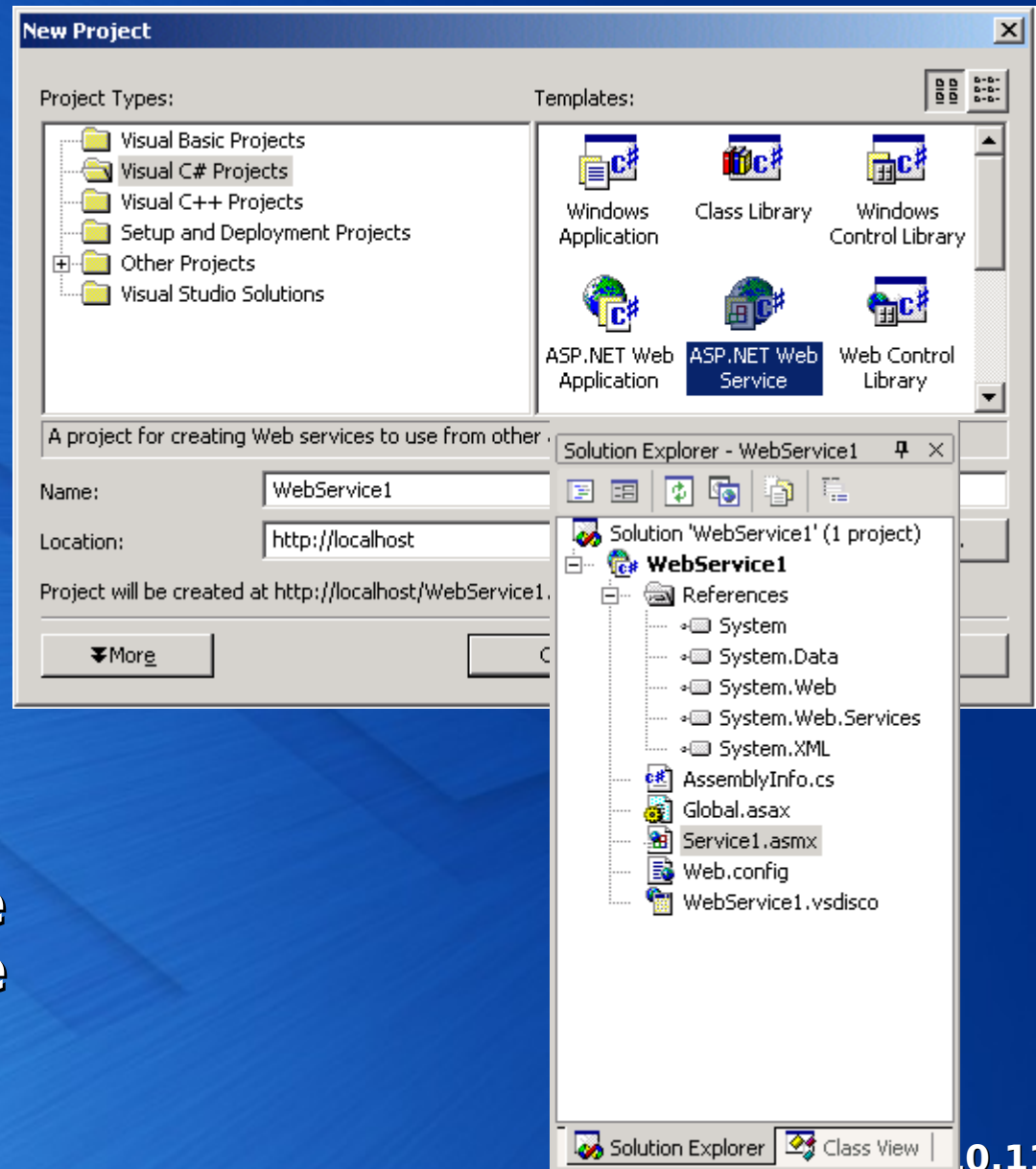
- **Think Registry (Yellow Pages) for Web Services**
- **Universal Description, Discovery and Integration (UDDI)**
- **UDDI itself is a web service – can be programmatically accessed**
- **Businesses can publish to registry and query registry**
- **May point to WSDL files**
- **Initiative driven by Microsoft, IBM, Compaq, Intel, Sun, Oracle and 250+ other companies**

Web Services (In Practice)



Creating An XML Web Service

- **Visual Studio .NET creates XML Web services for you**
 - **Generates the plumbing**
 - I.e., SOAP, DISCO, WSDL, etc...
 - **Automates the creation of the project files**



Creating An XML Web Service

- **Create standard function**

- **Right click project**

- Select add → Add XML Web service
- Name service file

- **Define function**

- Use template function in .asmx file

```
'<WebMethod ()> Public Function  
HelloWorld() as string
```

```
    'HelloWorld = "Hello World"
```

```
'End Function
```

- Uncomment and define the contents of your function

Creating An XML Web Service Demo

- XML Web Services 101
- Create simple XML Web service

C10SimpleXMLWebService

The following operations are supported. For a formal definition, please review the [Service Description](#).

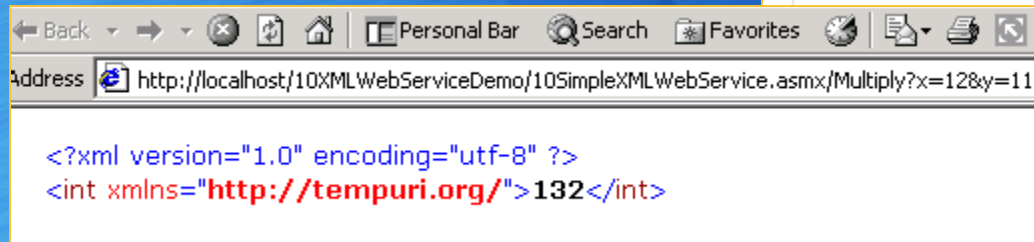
- [Multiply](#)
- [Square](#)
- [Add](#)

Multiply

Test

To test, click the 'Invoke' button.

Parameter	Value
x:	12
y:	11



The screenshot shows a web browser window with the address bar containing the URL: `http://localhost/10XMLWebServiceDemo/10SimpleXMLWebService.asmx/Multiply?x=12&y=11`. The main content area displays the XML response:

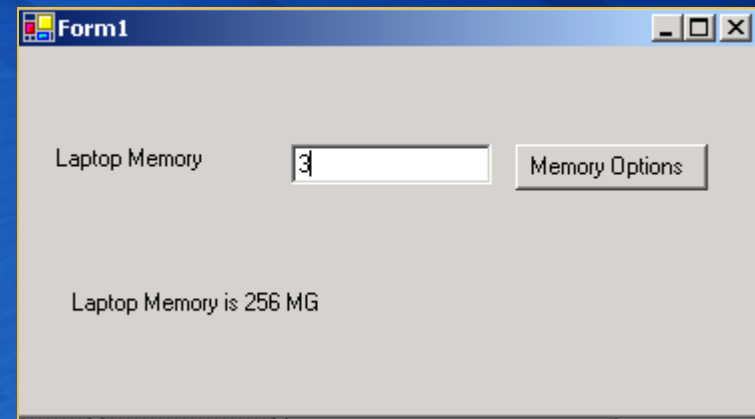
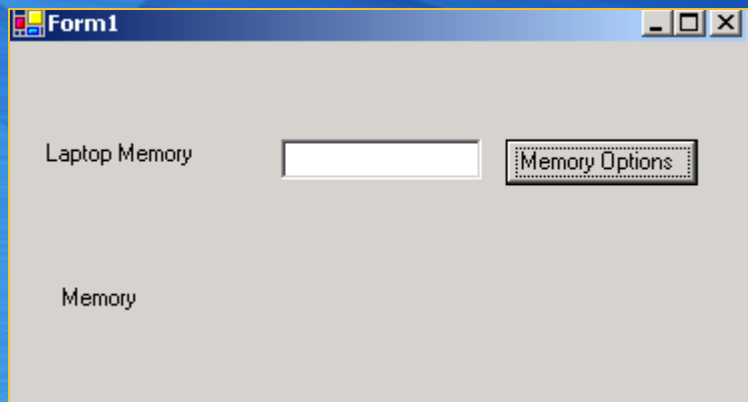
```
<?xml version="1.0" encoding="utf-8" ?>  
<int xmlns="http://tempuri.org/">132</int>
```

Consuming (Using) XML Web Services

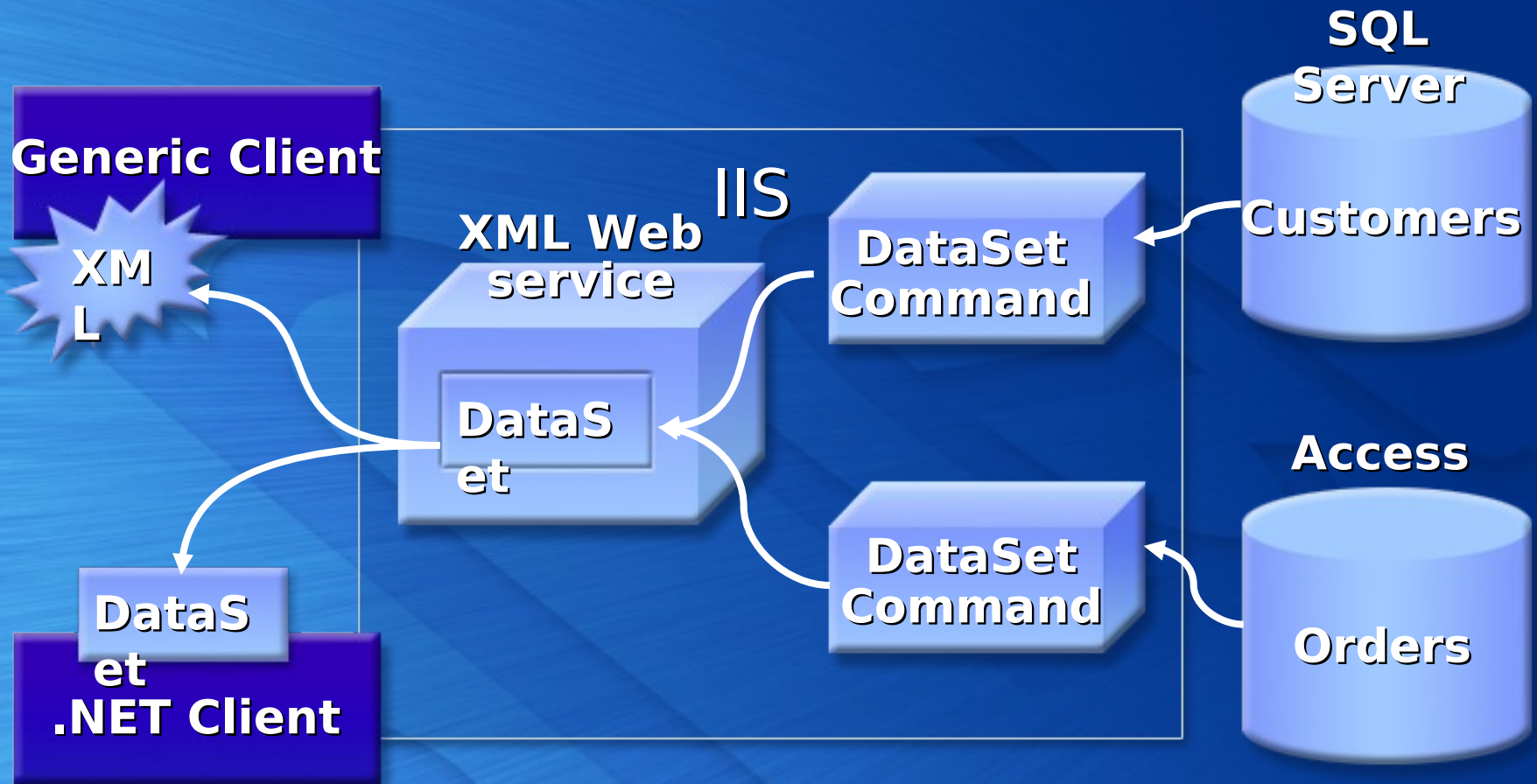
- **Create reference to an XML Web service**
 - **Search UDDI to discover SOAP-based, WSDL-described web services**
 - **Select add Web reference in Visual Studio .NET**
 - **Create variable reference to XML Web service:**
`Dim ws as YourServer.ServiceName`
 - **Use like any other class**

Consuming Web Services Demo

- XML Web Services Clients
- Create ASP .NET page to use XML Web service



Returning Data From An XML Web Service



XML Web Services and Data

Demo

- **Create data using an XML Web service and test it**
 - **Show how XML is returned to the browser but the DataSet is returned to the application that uses it**

Web Services and Windows Applications

Demo

- **Show using a Web service from a Windows Application**

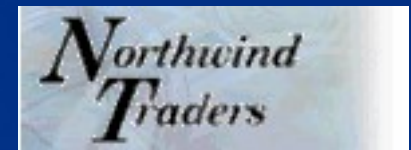
Designing an XML Web Service

- **Group related operations and data into one method**
- **Decide on:**
 - **Arguments and return data**
 - **Whether to use existing classes or create new ones**
 - **Security**
- **Use output caching to improve performance**
- **Define your input and output data structures using XSD schemas**
- **Separate XML Web service from underlying business logic**

Securing XML Web Services

- **Authentication**
 - Standard user account mechanisms
- **Authorization**
 - Custom code
 - Configuration settings in Web.config
- **Encryption**
 - SSL
 - Watch out for performance hit
 - IPsec

Northwind Traders Travel and Web Services



- Demo

http://localhost/NWTradersTravel/NWTradersTravel9254/TravelItineraryReview.aspx...

File Edit View Favorites Tools Help

Back Forward Stop Home Personal Bar Search Favorites

Address http://localhost/NWTradersTravel/NWTradersTravel9254/TravelItineraryReview.aspx Go Links »

Northwind Traders

Itinerary Review

Corporate Home | News | Sales | HR | Products

Travel Home View Itineraries Airlines

Destination	Start Date	End Date	Travel Occasiion	Status
London	8/1/2002	8/10/2002	Sales Call	
London	6/1/2002	6/8/2002		
Berlin	6/1/2002	6/8/2002		
London	6/1/2002	6/8/2002		
London	6/1/2001	6/6/2001	Sales call	
London	6/1/2002	6/8/2002	sales call	
Berlin	6/1/2002	6/8/2002		

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javascript: __doPostBack('dgdItinerary:ctrl1:ctrl2','') Local intranet

Summary

- **XML Web services**
 - **Enable cross-platform communication**
 - **Provide flexible mechanism for sharing information**
 - **Easy to create in .NET and Visual Studio .NET**

Resources

- ***What is an XML Web service?*** A simple overview of XML Web services
<http://www.microsoft.com/net/xmlservices.asp>
- ***Programmable XML Web Services*** - The basic building blocks for the Microsoft .NET Framework
<http://msdn.microsoft.com/library/periodic/period00/Webplatform.htm>
- ***SOAP and the .NET Framework*** - Basic article on various aspects of SOAP and how it works in the .NET Framework
<http://msdn.microsoft.com/library/techart/hawksoap.htm>
- **SDKs, white papers, specs, etc.**

Resources

- ***A Look at XML Web Services and Other Components*** - An explanation of pieces of .NET applications
http://msdn.microsoft.com/library/dotnet/cpandx/_cor_web_services_well_known_objects_single_and_singleton_client_activated_objects.htm
- ***Web Server Platform*** - A more detailed definition of XML Web services and how they impact .NET Applications
http://msdn.microsoft.com/library/techart/Websvcs_platform.htm
- ***XML Web Services Specifications*** - A simple explanations of XML Web services with a few links
http://www.gotdotnet.com/team/xml_wsspecs/default.aspx
- Microsoft UDDI SDK v1.5.2 -

In-Depth Training on XML Web Services

Direct from Microsoft

- **2524A: Developing Web Services Using Microsoft Visual Studio.NET**
 - **Available September 2001**

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